CLAIMS

1. A driving method for driving an electro-optical device having a matrix of pixels to display an image with gray scale, comprising the steps of:

dividing each field into a plurality of subfields; and

applying each pixel with a voltage that sets the pixels to an ON state on a subfield-by-subfield basis or a voltage that sets the pixels to an OFF state on a subfield by subfield basis so that a ratio of a period of voltage application time to set the pixels to the ON state to a period of voltage application time to set the pixels to the OFF state in each field is responsive to the gray scale level of the pixel.

2. The driving method for driving an electro-optical device according to claim 1, wherein time lengths of the subfields divided from one field are long enough so as to feed different root-mean-square voltages to different subfields.

3. A driving method for driving an electro-optical device having a matrix of pixels to display an image with gray scale, comprising the steps of:

dividing each field into a plurality of subfields;

setting each pixel to an ON state or an OFF state during a first subfield; and

controlling the pixel depending on a gray scale level of the pixel as to whether to remain in the ON state or the OFF state of the pixels during a subsequent subfield.

4. The driving method for driving an electro-optical device, according to one of claims 1 through 3, wherein each pixel is arranged so as to correspond to an intersection where one of a plurality of scanning lines and one of a plurality of data lines cross, and is set to the ON state or to the OFF state depending on a voltage applied to the data line when the scanning line is supplied with a scanning signal,

the scanning signal is supplied to the scanning lines on a subfield-by-subfield basis,

a binary signal for commanding the pixel to be set to the ON state or the OFF state is fed to the data line of the pixel when the scanning line of the pixel is supplied with the scanning signal.

5. A driving circuit of an electro-optical device for driving pixels, comprising a pixel electrode corresponding to each intersection at which one of a plurality of scanning lines and one of a plurality of data lines cross, and a switching element for controlling a voltage applied to each pixel electrode, the driving circuit comprising:

a scanning line driving circuit for supplying the scanning line with a scanning signal that turns on the switching element in each of a plurality of subfields divided from one field; and

a data line driving circuit for supplying the data line of the pixel with a binary signal commanding the pixel to be set to an ON state or an OFF state for a period during which the scanning line of the pixel is supplied with the scanning signal,

wherein the binary signal is a command signal to set the pixel to the ON state or to the OFF state so that a ratio of a period of voltage application time to set the pixels to the ON state to a period of voltage application time to set the pixels to the OFF state in each field is responsive to a gray scale level of each pixel.

6. A driving circuit of an electro-optical device for driving pixels, comprising a pixel electrode corresponding to each intersection at which one of a plurality of scanning lines and one of a plurality of data lines cross, and a switching element for controlling a voltage applied to each pixel electrode, the driving circuit comprising:

a scanning line driving circuit for supplying the scanning line with a scanning signal that turns on the switching element in each of a plurality of subfields divided from one field; and

a data line driving circuit for supplying the data line of the pixel with a binary signal for a period during which the scanning line of the pixel is supplied with the scanning signal,

wherein the binary signal commands the pixels to be set to an ON state or an OFF state during a first subfield, and commands the pixels as to whether to remain in the ON state or the OFF state during a subsequent subfield.

7. The driving circuit of an electro-optical device according to one of claims 5 and 6, wherein the data line driving circuit further comprises:

a shift register for sequentially shifting and outputting a latch pulse signal, supplied at the start of a horizontal scanning period, in response to a clock signal;

a first latch circuit for sequentially latching the binary signal in response to the shifted signal provided by the shift register; and

a second latch circuit which latches the binary signal, latched by the first latch circuit, in response to the latch pulse signal while simultaneously outputting the latched binary signals to corresponding data lines.

8. The driving circuit of an electro-optical device according to claim 7, wherein the first latch circuit simultaneously latches the binary signals, which are branched into a plurality of lines from a single line, in response to the shifted signal provided by the shift register.

9. The driving circuit of an electro-optical device according to claim 7, comprising a clock signal supply control circuit,

wherein the clock signal supply control circuit stops supply of the clock signal to the shift register after the scanning line driving circuit supplies all scanning lines with the scanning signal in one subfield, and restarts the supply of the clock signal at a start of a subsequent subfield.

10. An electro-optical device, comprising:

a pixel comprising a pixel electrode corresponding to each intersection at which one of a plurality of scanning lines and one of a plurality of data lines cross, a switching element for controlling a voltage applied to each pixel electrode, and a counter electrode arranged to be opposed to the pixel electrode;

a scanning line driving circuit for supplying the scanning line with a scanning signal that turns on the switching element in each of a plurality of subfields divided from one field; and

a data line driving circuit for supplying the data line of the pixel with a binary signal for a period during which the scanning line of the pixel is supplied with the scanning signal,

wherein the binary signal is a command signal to set the pixels to an ON state or to an OFF state so that a ratio of a period of voltage application time to set the pixels to the ON state to a period of voltage application time to set the pixels to the OFF state in each field is responsive to a gray scale level of the pixel.

11. An electro-optical device, comprising:

a pixel comprising a pixel electrode corresponding to each intersection at which one of a plurality of scanning lines and one of a plurality of data lines cross, a switching element for controlling a voltage applied to each pixel electrode, and a counter electrode arranged to be opposed to the pixel electrode;

a scanning line driving circuit for supplying the scanning line with a scanning signal that turns on the switching element in each of a plurality of subfields divided from one field; and

a data line driving circuit for supplying the data line of the pixel with a binary signal for a period during which the scanning line of the pixel is supplied with the scanning signal,

wherein the binary signal commands the pixel to be set to an ON state or an OFF state during a first subfield, and commands the pixel as to whether to remain in the ON state or the OFF state of the pixel during a subsequent subfield.

12. The electro-optical device according to one of claims 10 and 11, wherein the binary signal is shifted in level in response to a level of a voltage applied to the counter electrode.

13. The electro-optical device according to one of claims 10 through 12, wherein an element substrate on which the pixel electrode and the switching element are formed is fabricated of a semiconductor substrate, and

wherein the scanning line driving circuit and the data line driving circuit are produced on the element substrate, and wherein the pixel electrode has reflectivity.

14. Electronic equipment comprising the electro-optical device according to one of claims 10 through 13.